Research Programme

Operations

Improving the content and placement of anti-trespass signs
Rail Safety and Standards Board
T555 Improving the Content and Placement of Anti-trespass Signs
Final Report
June 2006

Halcrow Group Limited in partnership with Human Engineering Limited
Rail Safety and Standards Board
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## Glossary

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCTV</td>
<td>Closed circuit television</td>
</tr>
<tr>
<td>CSSU</td>
<td>Community Safety Support Unit</td>
</tr>
<tr>
<td>PSHE</td>
<td>Personal, Social and Health Education</td>
</tr>
<tr>
<td>RSSB</td>
<td>Rail Safety and Standards Board</td>
</tr>
<tr>
<td>SMIS</td>
<td>Safety Management Information System</td>
</tr>
<tr>
<td>TOC</td>
<td>Train Operating Company</td>
</tr>
</tbody>
</table>
1 Executive Summary

1.1 Introduction

This report summarises RSSB project T555, improving the content and placement of anti-trespass signage. The project was commissioned in response to a specific incident where a trespassing teenager was killed when hit by a train; the study was focussed on preventing future similar accidents to young people and the brief specified the requirement for imagery to be tested on young people through focus groups.

1.2 Summary of Methodology

1.2.1 The main part of the study was conducted between June and November 2005 and investigated the extent to which existing policy in regard to the placing and nature of “do not trespass” signs is effective. The initial study approach comprised three main phases. The inception phase encompassed a review of existing knowledge and in particular, sought to define the attributes and motivations of the target group when trespassing. A parallel stream of work explored visual warning sign images in use in other industries and countries; these were used to build a resource base that could be used in the subsequent development of messages and images for testing. Based on the output from the inception phase, a range of messages and images were developed and tested through qualitative research amongst the target audience. This took the form of focus groups amongst young people and was augmented with a group of parents. Finally, study findings were analysed and recommendations developed for improving the efficacy of existing signage.

1.2.2 Research results from the first phase indicated that improvements could be made to the current signage and that these may have benefits in reducing trespass amongst children and teenagers. However, none of the designs tested was identified as being fully effective. It was therefore agreed that further design concepts should be developed, based on the study findings, and tested using the existing on-line schools programme sponsored by RSSB.

1.3 Summary of findings

1.3.1 There is clearly a case for improving the effectiveness of existing anti-trespass signage, and in particular, through platform end signage. Both phases of the study emphasised that young people do not respond to “do not” signs, unless they can see clearly the benefits to themselves of compliance. However, rather than
changing the images, the best method may be to build on the generally recognised messages conveyed by signs to the wider population and support these with an additional text sign appropriately warning of danger. There appear to be no benefits, but rather disbenefits, from moving from accepted national signage standards for colour coding, size and shape.

1.3.2 In general, respondents outside of the parent group had a very low level of awareness of the dangers and risks presented by trespassing on the railway. None remembered hearing about them either at home or school; this was exacerbated by a tendency to disbelieve unless the risk was made real through seeing or hearing about it happening to someone else.

1.3.3 The risk of being caught has the potential to act as a real deterrent, particularly when reinforced through relevant signage. However, the risk must be credible to the target audience for it to be effective.

1.3.4 The study findings suggest that the responsibility for reducing trespass on the railway is shared beyond the industry. Whilst signs play some part in helping to reduce trespass where they act as a trigger to remind young people of things already known and learned, unless this information and learning is already inculcated within them, signs are not effective. In particular, it was found that parents have the potential to play a greater role in making their children aware of the potential dangers of the railway environment. A tendency to travel everywhere by car, coupled with low media coverage of the dangers of railway trespass means that the issue is not front of mind for parents, and hence, they are not passing on their own learning and understanding to their children.

1.3.5 Trespass was found to be wide spread geographically and it proved difficult to identify any particular “hotspots” and risk areas that could be targeted through signage. SMIS suggests that stations continue to be a key access point, suggesting that improving platform end signage might be of benefit. In addition, feedback from the focus groups suggests that where open land or parks lie adjacent to the railway in urban areas, there is a high risk that young people will see the railway corridor as simply an extension of this, rather than as a transport corridor with specific dangers.

1.3.6 There are benefits to be gained by continuing to support efforts to help the wider community understand the dangers of the rail environment through campaigns conducted in a non-railway setting. There is scope for use of additional media,
using harder hitting messages aimed specifically at teenagers/children, in
appropriately targeted locations. These may include railway locations – for
example, within stations, or at regular points of entry (where these can be
identified)—or non-rail locations where young people congregate, including, but by
no means limited to, schools. Feedback from teachers suggested that posters can
be an effective medium, but that these should bear images that resonate with the
target group. The different roles played by posters and signs should not be
confused, and the media should be kept separate.
2 Introduction

2.1 Introduction and objectives of the study

Halcrow, in partnership with Human Engineering Ltd, was commissioned by the RSSB to investigate the extent to which existing policy in regard to the placing and nature of “do not trespass” signs is effective and explore how the efficacy of “do not trespass” signs might be improved by alternative policies as to their placement and design. In particular, the project was to explore how the placing and design of “do not trespass” signs influences patterns of trespass. The study arose as a result of a specific incident where a trespassing teenager was killed when hit by a train; the study was focussed on preventing future similar accidents to young people and the brief specified the requirement for imagery to be tested on young people through focus groups.

2.1.2 The specific objectives of the study were to establish:

- The effectiveness of the existing policy regarding the design and placement of do not trespass signage, and to identify possible improvements.
- The extent to which current do not trespass signs convey the consequences of trespass effectively
- Whether the current placement arrangements of do not trespass signs is effective
- The development of alternative, more explicit, do not trespass signs
- Testing of these signs to determine which design best conveys to target audiences the potential consequences of trespass
- Potential benefits that might be obtained by placement of the best alternative do not trespass signs at locations where traditional do not trespass signs are located
- Benefits of extending the provision of the alternative signs at other locations, where those intent on trespass access the railway

2.2 Overview of study method

The main part of the study was conducted between June and November 2005 and investigated the extent to which existing policy in regard to the placing and nature of “do not trespass” signs is effective. The initial study approach comprised three
main phases; an inception phase, encompassing the review of existing knowledge and leading to the development of messages and images for testing; qualitative research amongst the target audience, taking the form of focus groups, and; a final phase comprising analysis and recommendations.

2.2.2 Research results indicated that improvements could be made to the current signage and that these may have benefits in reducing trespass amongst children and teenagers. However, none of the designs tested was identified as being fully effective. It was therefore agreed that further design concepts should be developed, based on the study findings, and tested using the existing on-line schools programme sponsored by RSSB.

2.3 **Objectives of the report**

2.3.1 The purpose of this report is to share the findings of the study; in particular, it draws together the conclusions, based on the research findings.
3 Review of existing knowledge and development of signs for testing

3.1 Introduction

Trespass is prevalent across a range of industries and a range of countries. As such, the study sought initially to benefit from both experience internal to the rail industry and also from seeking knowledge from other industries and countries.

3.1.2 In particular, the following sources were explored:

- Existing research studies, including work on the profile of trespassers (including age and motivation)
- Existing UK signage, both rail and non-rail (for example construction industry signage)
- Existing signage from other countries, both rail and non-rail
- UK anti-trespass initiatives, including work done by the Community Safety Support Unit (CSSU) and Network Rail
- Overseas anti-trespass initiatives, including Direction 2006 in Canada and Operation Lifesaver in the USA
- RSSB’s Safety Management Incident System

3.2 Literature Search

Existing studies were reviewed in order to build up a profile of trespassers that could be used to inform the next stage of the study and to ensure additionally that other learning in the area of deterring teenage trespass and developing cost effective solutions was taken into account. The Halcrow and Human Engineering team had already undertaken a review for T332 Trespass and Access from the Platform End, which contained much material that was relevant to this study. This work was therefore taken as the starting point and updated with new sources relevant to the issue of signage. A summary of findings can be found at Appendix A.

3.3 Images currently used to deter trespass - UK

3.3.1 Images were obtained of existing UK anti-trespass signage, both from the rail and non-rail environment. Appendix B contains images from the UK. The examples shown below are typical of signs currently used in the UK rail environment.
3.4  
3.4.1  **Overseas context**

Findings from this phase confirmed that Britain is unusual in placing responsibility for preventing access to railway infrastructure on the railway administration, rather than the individual. However, several overseas administrations use signage, for example at platform ends, to warn people of the dangers of trespass on the line. Images were collected from a range of sources to illustrate the use of warning signs. Examples of those typically used in a rail context include the following:
3.5 UK anti-trespass initiatives.

3.5.1 Consultation, both on this and previous studies, has evidenced a number of initiatives being undertaken in order to deter trespass.

3.5.2 One such is a project undertaken by the CSSU; in response to an approach from teachers, the CSSU has been working with schools on a project exploring the clarity and effectiveness of rail warning signs including the dangers of voltage and electricity. Various symbols and designs produced by scholars have been tested amongst the study community on-line. Respondents have been asked to evaluate the various designs and suggest where the signs should be placed. To date, school children have suggested fences, gantries on overhead cables, bridges and bridges that pass overhead cables.

3.5.3 Network Rail treats the issue of trespass with gravity; their 2005 summer campaign “No Messin” has formed part of the input to our primary research (see below). Research undertaken for T332, Trespass and Access from the Platform End suggests that other complimentary work is being undertaken by Train Operating Companies (TOCs), including campaigns that take them into a range of community groups from youth groups to pre-school groups.

3.6 Development of images for testing in next phase

3.6.1 Based on the findings of the review, a range of images/text was drawn up and agreed with RSSB for further research. The range was drawn from firstly, existing signage without alteration and secondly, revised concepts based on best practice from other industries or countries. In addition, images were incorporated from work led by the CSSU with schools, under which school children themselves designed messages and images that could be used on signage. All the designs were
“mocked up” into flash cards to provide graphic images to be used as the basis for discussion in the focus groups. Signs were developed for use nationally and included signs that address specifically the electrocution risk in third rail areas. A variety of different concepts were selected to test a range of stimuli, including:

- Text alone
- Shape of signs
- Size of signs
- Different colour combinations
- Imagery
- Mix of text and imagery

3.7 Profile of Young Trespassers

3.7.1 The review of research uncovered a number of characteristics common to young trespassers, which are summarised in the table below:

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>CHARACTERISTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age and gender</td>
<td>The majority of offences are committed by males aged between 8 and 14 (1). Females typically are less likely to commit a trespass offence although there is research to suggest this trend may be changing. In the last 5 years the percentage of female child fatalities has risen from 9% to 24% (2).</td>
</tr>
</tbody>
</table>
| Reasons for trespassing| Incidence of trespass increases during spring, summer and autumn, during school holidays, especially Easter and summer. A survey of children (3) revealed the primary reasons for trespassing are:  
  'Taking a short cut’ – 27%  
  'Nothing else to do’ – 28%  
  'My friends wanted me to’ – 19%  
  'Lots of people play / hang out’ – 11%  
  Research carried out by the Rail Passenger Council (4) suggests that:  
  It is unlikely that they are many, if any, young people whose criminal activities are focused on the railways; i.e. a vandal is just as likely to damage private cars as trains.  
  Amongst young people, specific patterns of criminal behaviour might only last for a few weeks.  
  In addition, a lot of trespassers are known to engage in acts of vandalism. The two crimes are inextricably linked in terms of the railway. |
| Location               | A MORI poll conducted in 1998 (5) identified that those youths attending schools closest to the tracks are the most likely to trespass and vandalise railway property, and the critical distance at which the number of offences begins to fall significantly is about two miles. |

Table 3.1: Profile of a Young Trespasser
4 Qualitative Research/Focus Groups

4.1 Introduction

The crux of this study was testing the reaction of the target audience (that is, young people) to the stimulus material. Youth research is a specialist area, requiring extremely experienced moderators for both undertaking the research and analysing the results. Young respondents are sensitive to being patronised and a responsive approach, especially with this type of target audience, was required. For this reason, a specialist partner, Quaestor Market Research, was engaged to conduct a series of focus groups.

4.2 Methodology

4.2.1 Based on the findings of the previous phase, a recruitment profile was built up for the focus groups. Respondents were carefully screened to ensure that the key target audience was represented. Recruitment focused on youths who:

(a) Were all infrequent or potential trespassers
(b) Were all worried about what would happen if they were caught
(c) Come from areas where there are few other attractions for children to engage in e.g. community centres, clubs, activity camps during holidays etc.
(d) Live and/or attend schools within 2 miles of a railway line.

4.2.2 Friendship pairs were recruited to encourage discussion and aid participation and reliability. Groups were limited to no more than eight people, to encourage active discussion, debate and, importantly, honest open responses to the topic area. Given the age range of the target market coupled with the ‘sensitive’ nature of the research (i.e. mindsets and attitudes towards trespassing) the original plan was to undertake five 90-minute focus groups, each focussing on a small age range.

4.2.3 Age ranges of participants in the focus groups were split into the following groups, allowing more homogenous age breaks in the youth sample to be focused upon, giving moderation, peer cohesion and analysis benefits:

- 7-9 years old
- 10-12 years old
- 13-15 years old
• 16-18 years old

4.2.4 The younger age groups were identified as most at risk for being tempted onto the railways, whereas the older groups were identified as most likely to commit trespass.

4.2.5 The sample was augmented with a group of parents, who either had children who currently trespass or who were worried that their children may trespass on the railways in the future. As hoped, this added a valuable dimension and introduced an angle on the issue of trespass and the effect of sign design that has acted as a useful catalyst for the analysis.

4.2.6 To encourage open participation, all groups were single sex except for the parent group, which was mixed gender. Based on the findings of the review stage, it was decided that the focus groups would concentrate on males, as being most at risk from trespass; however, the review also raised concerns about the activities of older females, with the result that an additional focus group was added, of girls aged 16-18.

4.2.7 Recruitment for the groups took place in locations where trespass onto the railway was identified as likely to be a risk. An initial analysis of RSSB’s Safety Management Information System (SMIS) suggested that over 11,000 incidents of trespass occur per annum and that geographically, these are very widespread. Further insight was therefore sought, and Network Rail’s Community Liaison teams consulted to identify the most promising locations for research.

4.2.8 Three contrasting trespass hotspots were identified and deliberately selected to allow for exploration of third rail, overhead line and non-electrified issues; there are obvious and additional dangers attached to each of the electrified environments that are not present on non-electrified lines. Areas were also selected to capture possible differing regional attitudes to child/youth “freedom”. Table 4.1 below illustrates the location and composition of research groups.
### LOCATIONS

<table>
<thead>
<tr>
<th>Location</th>
<th>Age</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crawley, Sussex</td>
<td>7-9</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>13-15</td>
<td>Female</td>
</tr>
<tr>
<td>Cardiff East</td>
<td>10-12</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>16-18</td>
<td>Female</td>
</tr>
<tr>
<td>Leeds</td>
<td>16-18</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Parents</td>
<td>Mixed</td>
</tr>
</tbody>
</table>

*Table 4.1: Focus Groups*

4.2.9 Detailed discussion guides were drawn up prior to the focus groups to ensure that the following topics were explored at length:

- Current patterns and attitudes to trespass on the railway
- Attitudes towards different types of signage e.g. signs conveying a strong personal warning, rather than a “don’t do” message that can encourage misbehaviour
- Reactions to specific verbal messages, both current and potential
- Reactions to specific visual messages
- The extent to which particular combinations of images and messages have the potential to alter behaviour
- Whether sign size plays a role in perceived importance of the message conveyed
- Optimal positioning of signage

4.2.10 Sessions were moderated by specialist children and youth researchers with experience in getting children to open up and be honest.

4.3 **Summary of Research Findings**

4.3.1 A full write up of the focus groups was prepared by Quaestor. Key findings are summarised below.

4.3.2 “Trespass” was seen as an old fashioned word, and not one that was in people’s everyday vocabularies. It portrayed a variety of meanings to focus group respondents, ranging from “crossing over a border” to “being on someone’s land without permission” to “doing something illegal”. The word has multiple and ambiguous meanings and failed to immediately convey danger.

4.3.3 For children in the research locations there was a genuine lack of things to do and spaces for them to be themselves. The younger age group (aged 7-9) tended to
pass time playing football and riding bikes, 10-12 year olds spent time in youth clubs. 13-15 year olds spent much of their time just hanging around, whilst 16-18 year olds tended to pass their time in pubs/sports clubs, and riding motorbikes. Both children and parents called for free/cheap relevant and local activities for children/young people.

4.3.4

None of the respondents deliberately set out to trespass on the railway, nor is thrill-seeking their motivation; rather, they tend to gravitate towards it because it offers somewhere to go – it could as easily be a river or canal. For younger children, it represents a play area (especially where next to a park or woods, where it is simply seen as an extension of that space); for older teenagers, it offers the opportunity for some private space, away from adults. The associated dangers and risks of the rail environment were largely unperceived.

4.3.5

This understanding of the dangers of the rail environment was specifically probed by the researchers in some depth; overall, whilst there was some perception of the severity of risks such as getting hit by a train, there was little or no awareness of the extent to which they as an individual were themselves at risk. Respondents were generally confident that they could avoid danger. Probing suggests that this state of mind results from a range of factors:

- No direct personal experience of the risks/dangers
- Lack of inclusion in (or recall from) PSHE at school
- Sense of invincibility “it won’t happen to me”
- Limited train sense – not taught dangers by parents
- Low media profile in contrast to road safety
- In a few instances, parents’ actions implicitly remove sense of risk, for example by taking short cuts over railway infrastructure.

4.3.6

There was very low, if any, recall of existing signage. This suggests either that it is ineffective, and/or that it is not located in the areas where respondents may have noticed it. Discussions within the groups suggested that even within a small area there was a large variety of methods and points of access onto the railway. For example, some were hanging around on the platforms, within waiting shelters. Others were trespassing on the station car park, rather than on the tracks. Yet others accessed the railway by going through local woods onto railway land or by riding their bikes and finding paths that led down to the side of the railway tracks.
4.3.7 Before evaluating the prepared signs, respondents were asked to draw an effective sign to stop trespass. A number of learning points arise from their responses, most notably:

- Designs tended to feature people, thus making the impact more real
- Designs show what the risks are very clearly and simply
- Messages are very direct and use simple language
- Designs are eye-catching and use colour
- Trains feature in many of the designs

4.4 Conclusions from testing of initial signage concepts

4.4.1 A range of visuals were tested in order to understand the impact of different text, colours and images; the visuals are shown in Appendix C. Overall, no single sign stood out as likely to be particularly effective in deterring trespassers at the point of trespass.

4.4.2 The first visuals to be tested were textual, and gave out specific messages, for example, “Danger trains can kill” and “Warning police patrol this area”. It was found that the likelihood – or perceived likelihood – of consequences actually happening has significant influence on the impact of the message. Claims must be made real if signage is to be effective. Of the key words, “Danger” came over as by far the strongest, in contrast to “Warning”, whose impact was perceived as having been diminished through over-use.

4.4.3 Within the two groups in an area where the railway has a third rail electrified line, there was a high awareness of the link between trains/tracks and electricity. However, as found in previous RSSB studies (specifically T064, Dangers of the Third Rail) there was confusion as to the dangers presented by this. There was generally poor understanding of the dangers of overhead wires. In particularly the inclusion of voltages on warning signs was irrelevant to the members of the focus groups who had no concept of what the numbers represented.

4.4.4 A range of images were then tested with existing signage scoring particularly poorly. Existing platform end signage (“passengers must not cross the line”) tested particularly poorly and did nothing to convey the dangers of crossing the track to the respondents, being seen as lacking any element of danger and being irrelevant to trespassers, as they are not passengers.

4.4.5 The two images below came across as the most effective:
The images reinforce how simple messages and relevant graphics (that is, illustrations that show the consequences) speak most directly to the target audience of the focus groups.

Of the two, the trains can kill message was felt by the respondents to be the stronger, although the inclusion of an image that was more like them – for example, a child, perhaps with a bike – would, they felt, have been even stronger.

4.5
4.5.1 Feedback on No Messin’ Creatives

At the request of Network Rail, the images from the No Messin’ campaign, from the summer of 2005, were also tested, together with variants combining images from the current “Track off” campaign. Reactions to the visuals were mixed. Images against yellow backgrounds, bearing the simple message “danger of death” or “maximum penalty death” tested well for immediate visual impact, effective communication of the danger and risk, and links with railway trespass. Conversely, the remaining existing No Messin! visuals scored less well on impact.
5 On-line research

5.1 Introduction

Following the reporting of the first phase of work, it was decided that research results from the first phase indicated that improvements could be made to the current signage and that these may have benefits in reducing trespass amongst children and teenagers. However, none of the designs tested was identified as being fully effective. It was therefore agreed that further design concepts should be developed, based on the study findings, and tested using the existing on-line schools programme sponsored by RSSB.

5.2 Contrasts in study samples

5.2.1 The original research targeted a very specific group of young people. Respondents were carefully screened to ensure they were all:

- Aged 7-18
- Lived within two miles of a railway line
- Had little or nothing to do in their local area
- Had considered trespassing/trespassed a few times on the railway line (but didn’t do it all the time)
- Wouldn’t trespass just to escape the police or to graffiti
- Thought they would get in trouble with their parents/the police if they got caught.

5.2.2 In contrast, the second phase of research made use of RSSB’s existing school’s programme (managed by the CSSU) and in particular, the track-off website which is geared towards the national curriculum and provides source material for teachers. An e-mail was posted on the track-off website, inviting schools to get involved; eight secondary schools responded.

5.2.3 The children included in this second study were not selected in line with the original criteria, but rather represented a whole school class – as such, they are more broadly representative of the general population, but may under represent the original study target. Moreover, in undertaking the qualitative research phase of the original study, it was found that the types of children who fit the recruitment criteria of the original objectives are much more likely to be missing from school, either through truanting or exclusion. The mix of children involved in the second
phase is therefore much broader. This has advantages, in that it tests the effects of words and images on a broader population, but disadvantages in that direct relevance to the original target group may be weakened.

5.2.4 Moreover, the qualitative research conducted for the first phase suggested there may be some differences in attitudes and therefore potentially in the signs which would be effective for different age groups. It was difficult to test this in the follow-up work, which has involved secondary age school children only.

5.3 Methodology – follow-up study
5.3.1 For the follow-up study, use was made of the RSSBs existing schools programme. This makes available on-line material that teachers can use as the basis for lessons. In particular, there is an on-going programme exploring the effectiveness of warning signs, which is particularly used by Art teachers as the basis for lesson plans.

5.3.2 The findings of the original study were used as the basis for further exploration. In particular, images and words that had originally tested as being effective were discussed in order to try to explore those combinations most likely to be successful.

5.3.3 8 schools chose to take part in this second study. Each school downloaded from the web-site a range of images and messages, for discussion and development. These were used by teachers to guide discussions with individuals and amongst groups concerning the meaning and effectiveness of the various symbols and messages.

5.3.4 Within the structure of a lesson, scholars were initially briefed on the international standard for safety signage, that is, that white signs give useful information, green signs give safety information, blue signs give instructions, red signs give instructions and yellow signs warn of danger. They were then presented with a series of signs for discussion. Initially, they were shown a range of images and asked to choose the best image. In choosing they were asked to consider factors such as whether the sign stands out from its background, how easy it is to understand, and whether it can be seen from a distance.

5.4 Development of visuals for testing
5.4.1 Based on the findings of Phase 1, a series of visuals were developed for testing. The underlying principles used in their development were taken from the findings
of the first phase, which found that in order to develop effective signs for children and teenagers who may engage in casual trespass on the railway (that is, a specifically targeted segment of the general population, rather than the total “at-risk” population), signs should:

- Be direct and hard hitting for example, use the words “danger of death”
- Include believable consequences (words/visuals)
- Be related to children (visuals/choice of words)
- Have visuals relevant to railway dangers
- Be real (showing person and train)
- Convey believable risk
- Have images that are quick to process mentally
- Support existing understanding (that is, signage should act as a prompt, leading to a wider recall of anti-trespass messages)
- Use common danger colours (yellow or red)
- Include where relevant prosecution, injury, detail statistics
- Avoid technical detail

5.4.2 Based on these principles, a series of signs for use at platform ends and other zones was developed for testing in this second study phase. After discussion within the project team, (CSSU, RSSB and Halcrow), it was agreed to break signs down into their constituent parts (one based on the image, another on the message) for testing, first of all separately, and then together.

5.5 Study results – platform end signage
5.5.1 The following images were tested as possible replacements for existing platform end signage.

5.5.2 In practice, however, the feedback from the teachers leading the sessions suggests that these were no more effective than the existing signage:
5.5.3 Whilst the key message of “don’t cross” was understood from each sign, in no case was it felt that a sign clearly conveyed why it was important not to cross. This is surprising in the context of the third and fourth images which build on the findings of successful elements of the first study by showing a person and a train plus the consequence of their coming together. The study context may be influencing this, reflecting the preferences not of the original study group, but of a wider population, and in particular, possible adult influence from the teachers facilitating the lessons. This aside, the finding of the first phase that a symbol on its own is not enough – children and teenagers must be given a reason sufficiently strong to deter them - is validated by this second piece of work.

5.5.4 Textual signs were then tested to assess their effectiveness alongside a symbol in communicating both the “do not” and “because” messages. The original research study suggested that strong language, for example, “Danger, Trains Can Kill” was the most effective in deterring the target audience. This met, however, with strong initial resistance amongst teachers; recognising the impact that these words may have on a wider adult audience, and potential for resistance from the wider community, it was therefore decided to test less stark messages:

![Danger signs](image)

5.5.5 The shape on the right was found to be particularly effective when combined with the existing round signage.

5.5.6 These findings throw up a potential conundrum for the study. The first phase clearly recognised the need for strong visual images and simple, impactful messages if the original target group are to be deterred from trespass. However, the study report recognised that signage operates in a wider context with any change will affect the entire population, not just those involved in the original
research. Moreover, there appears to be a strong recognition of general signage “rules” amongst the wider population. In seeking to alter the behaviour of a minority, care must be taken that in there is no deterioration in current conditions with regard to the wider population.

5.5.7

One solution therefore, could be to conduct a field test of a combination of the existing platform end sign with the danger notice. Current practice is to combine the image with a “do not” message, rather than a “why not”. Stations with specific child and teen (and older) trespass problems, could be selected for a low cost trial, using recorded incidents to test the situation before and after signs are erected (in practice, a minimum year’s worth of data would be required for a worthwhile trial).

5.5.8

However, at points where there is no general exposure of the public to signage (for example, at points where trespassers are making illegal entry, for example), there may be merit in testing a stronger image and message (this may not be through the medium of a sign – see 5.1.3 below).

5.6

Study results – electrification signage

5.6.1

The following image was shown to scholars as an example of a sign warning of the danger of high voltage electricity on the railway tracks:
5.6.2 In practice, however, and again in apparent contrast to the first phase results, the feedback from teachers is that this was no more effective than the current signage:

![Electric Signage Example]

5.6.3 As for platform end signage, the different context of the two phases of the study may well be influencing the results. However, once again, both phases agree on the deficiencies of using images alone. Additional textual messages were therefore shown alongside the images:

![DANGER Signage Example]

5.6.4 As with the platform end signage, wording is “toned down” from solutions suggested by Phase one, which found the concept of 750 volts to be poorly understood by the original target group. In practice, the signage recommended by teachers – the triangular “lightning” sign with a danger message is little different from that currently in use on the network. Again, it is difficult to tell how much adult perceptions are translating results here. However, the use of red lettering for “danger” does appear to be more impactful than current black lettering and may be worthy of consideration for testing on future signing.
6 Conclusions and recommendations

6.1 Introduction

The remit of this research project was specifically aimed at young people who have the potential to trespass on the railway but are not hardened or serial offenders. As the study has developed, the need to find a means of influencing the behaviour of this group has come to be balanced against the recognition that existing conditions should not be worsened thereby for the general population, but if possible, improved. The following conclusions are designed to meet these twin objectives.

6.2 Tackling the root cause of trespass

6.2.1 For the young people within the original research base of this project, a number of factors led to them trespassing within the rail environment. Principal amongst these was a desire to find something to do and somewhere to do it. For younger children, the motivation was a place to play; older children and teenagers in particular came to the railway as a space where they can be themselves, away from parents and other adults. Once within the rail environment, it is easier for them to get drawn into more severe trespass. Whilst education, enforcement and signage will help to deter them, this is not a rail industry problem per se, but rather a community one, potentially best tackled through a multi-agency approach to solve the underlying issues.

6.3 Tackling ignorance through education

6.3.1 The research uncovered a lack of awareness of the dangers of trespass on the railway. In particular, parents themselves acknowledged that they had not perhaps fully communicated the dangers to their children. RSSB Study T064, which investigated awareness of the dangers of the third rail, suggested that there was a greater role for parents to educate their children in the risks of rail trespass from an early age, a role which could be reinforced, but not replaced, by education in the classroom. This suggests that there may be scope for a campaign amongst the parents of very young children to improve their awareness of the dangers of railway trespass and to encourage them to prepare their children better to avoid these.

6.3.2 With this foundation in place, children are better placed to avoid trespass as they grow up; however, initial learning may benefit from being reinforced through “top-up” campaigns as children grow older, provided that messages are kept simple,
impactful and credible. Anecdotal evidence from the focus groups suggests that potential offenders may not have the highest literacy skills; it is therefore imperative that messages are simple, and use words that are within their own daily vocabularies and experience. Moreover, material must avoid any hint of being patronising through, for example, attempting to be “cool”.

6.4 Tackling behaviour through enforcement

6.4.1 It is clear from the findings of the focus groups that using threats or warnings to influence behaviour is only credible as a strategy if these are seen to be borne out in reality. The responses of the regional focus groups suggests that the risk of being caught by the police has the power to act as a real deterrent in some areas (this was in contrast to the south east where it appeared to have little deterrent effect), but only if the risk is seen as real. This suggests that the stepping up of police patrols and monitoring of CCTV has the potential to reduce the incidence of teenage trespass, provided that offenders are apprehended and publicly dealt with.

6.5 Changing behaviour at the point of trespass

6.5.1 The potential of signs to change behaviour in the absence of any other activity is limited. However, where there is already a basic understanding of the dangers of trespass, signs have the power to activate a wider recall of things already learned and understood. There was little or no recall of existing signage within the focus groups; moreover, it failed to convey to the respondents the risks of trespass. It seems unlikely that existing signage will have or is having much impact on their behaviour. Current warning signs, whilst conveying the “do not” message do not deter trespass amongst children/teenagers. A “why not” message is required to do this with existing images supported by simple, clear messages, which spell out the consequences of ignoring the signs. Red and yellow are clearly understood as “do not” and “danger” colours, whilst circles and triangles link into nationally understood systems of instructional and warning signs.

6.5.2 The impactful messages on some of the existing “No Messin” posters tested well in the groups and the posters have a useful role to play in providing more information on the dangers and consequence of trespass. Extending the poster campaign to other locations where children have time to stop, read and digest the messages conveyed may bring benefits in widening the appreciation of risks. Locations could include waiting areas and platform shelters, particularly at those stations where children are known to hang around in groups of friends.
6.5.3 Identifying the points of entry on to the rail system (over and above stations) may not be straightforward. Trespassers are entering at a wide range of locations; identifying and covering all entry points is likely to be impracticable. Moreover, trespassers are often reluctant to divulge their “secret” place to others (even to other trespassers). Tackling stations which are unstaffed for all or part of the day, or where platforms are out of sight of ticket offices, appears to be an obvious starting point. Other high risk areas appear to be where rail lines run adjacent to open land or parks within an urban area. Obvious access routes (for example, access tracks used by maintenance gangs) could be another target. However, evidence suggests that trespass is extremely widespread across the network and entry points numerous. It may, therefore, be more productive to focus efforts on more effective signage at platform ends and at known trouble spots.

6.6 Recommendations for the Way Forward

6.6.1 The research indicates that improvements could be made to the current signage that may have benefits in reducing trespass amongst children and teenagers. However, the current signage is part of a wider vocabulary within the general population. Changing this may therefore be counter-productive. The recommendation is, therefore, that a locational trial be made using existing warning signs amplified by textual signs which explain the reason behind prohibition (for example, supporting an existing platform sign with a “Danger. Do not cross” message).

6.6.2 Network Rail’s existing strategy of using posters to warn young people of the dangers of trespass is strongly endorsed. There may be merit in extending this campaign to off-rail locations; in particular, it may be appropriate to display anti-trespass messages within the school and other youth environments in the run up to major holidays.

6.6.3 Both this and other research studies clearly indicate the importance of educating children from an early age in the dangers of rail, and indicate the important role that parents have to play in this process. It is recommended that current work is continued and perhaps even extended to draw in the parents of young children. Efforts should be made to ensure the inclusion of the topic in PSHE lessons for older children. The rail industry has a good track record in such work, which involves not only Network Rail, but also TOCs. As such, there will be benefit from ensuring that the results of this study are brought to the attention of the wider rail industry, and from encouraging a wider industry response.
6.6.4 Reminder/reinforcement measures including stories in the media to increase awareness of trespassers caught and punished would also help to augment learning. It is recommended that the industry as a whole consider its messages and campaigns in this area.

6.6.5 Finally, this is not an issue for the rail industry alone, but one which can only be solved through a multi-agency approach with the wider community co-operating and indeed taking some responsibility for the issue. Involving the wider community in identifying and providing primary activities and, importantly, involving the children themselves in decision making and choices will tackle the issue of trespass at its root. Serious consideration should be given by the industry to a united programme to tackle trespass, including the provision of funding, - perhaps in partnership with other agencies, for alternative activities and places for children to play.
## Appendix A - Literature Review Summary

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| **TITLE:** Youth Perception of Risk. Why do Youth Risk Their Lives…and How to Change Youth Behaviour in Rail Safety?  
**AUTHOR:** G. Drouin, Transport Canada  
**SOURCE:** Managing Trespass Seminar CD Rom, April 2004 | A questionnaire that was given to 12 to 18 years olds to establish their awareness, behaviour, attitude, opinions and knowledge about the railway safety and danger.  
51% of those that answered the questionnaire admitted that they had ‘walked along railway tracks’ and 40% stated that they had‘ crossed railway tracks at a spot where there was not a crossing’.  
A minimum of 49% of respondents stated that they would take a short cut across the railway tracks if it were to save 10 minutes from their journey. For a shortcut that would save more time from their journey up to 72% admitted that they would take a short cut across the railway tracks. | The results of the research revealed that, although the current level of awareness about the dangers of railways among Canadian youth is sufficient to prevent them from engaging in the most dangerous behaviours (such as racing a train to a crossing), it is not broad or deep enough to prevent them from engaging in less obviously dangerous behaviours (such as walking on the tracks etc.).  
It could be that the 12 – 18 year olds in the UK hold similar opinions and that they do not feel they are putting themselves in danger by trespassing (e.g. walking along the track).  
The paper implies that trespass amongst youth could therefore be most effectively reduced through education. |
| **TITLE:** T064 Raising awareness of third and fourth rail risks  
**AUTHOR:** Carne Martin Litchfield | The report investigates the attitudes of teenage boys to the risk associated with the third and fourth rail and reports on a subsequent campaign to increase awareness. | Explores a range of messages and communications and tests the extent to which these might be successful in deterring trespass. Found that direct messages, including those based on fact, most successful. Research suggested that campaigns were most successful where they forced people to re-consider their assumptions about consequences of trespass and were felt by the |
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<td>SOURCE: <a href="http://www.rssb.co.uk">www.rssb.co.uk</a></td>
<td>Analysis of statistics on trespass and electrification incidents shows that 11-14 year old boys from socio-economic groups C2, D, and E constitute a major risk group. A qualitative survey of youths’ attitudes towards trespass and electrification was undertaken. This found a high level of misunderstanding about the dangers of the electrified railway, and belief in ‘myths’ such as that the current is switched off at night and that tracks in sidings and depots are not ‘live’. A pilot advertising campaign was commissioned, based on Merseyside and aimed specifically at teenage boys, using the themes of football and computer games to capture their interest. Leaflets, posters and radio adverts were used in the campaign, which was supported by Network Rail, local train operators, and Liverpool and Everton FCs. Surveys taken before and after the campaign showed it to have been significantly more effective than most in increasing public awareness.</td>
<td>audience to be close to real situations. Findings stressed importance of building awareness of risks at an early stage in life, whilst children are still able to be influenced by teachers and parents. Found that rail message can be drowned out by other safety messages and that parents could do more to re-enforce the rail message. Also found that credibility of danger message undermined by factors such as sloping platforms and seeing railway staff on the tracks.</td>
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<td><strong>TITLE: RSSB T062 Evaluation handbook for route crime and other initiatives</strong>&lt;br&gt;<strong>AUTHOR:</strong> Davis Associates&lt;br&gt;<strong>SOURCE:</strong> <a href="http://www.RSSB.co.uk">www.RSSB.co.uk</a></td>
<td>This research addressed the problem of the industry not knowing which anti-vandalism initiatives work and which do not, given the absence of any systematic evaluation. Risk Solutions, with input from Crime Concern and the Child Accident Prevention Trust, developed a single methodology that can be applied to all schemes. Experience from other industries was taken into account. The result of the work is a manual containing a methodology, which can be used throughout the life of a project. It ensures that provision is made for evaluation, which requires the identification and capture of relevant data. An accompanying CD-ROM and user guide were prepared in co-operation with route crime practitioners and have been put into use by Network Rail and the British Transport Police. The methodology can be used for other applications apart from route crime.</td>
<td>Consideration should be given to the use of relevant parts of the evaluation methodology should new signs be put to trial.</td>
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<td><strong>TITLE: T063 Trespass and vandalism cost modelling</strong>&lt;br&gt;<strong>AUTHOR:</strong> Risk Solutions</td>
<td>Outlines the development of the vandalism cost model, including all vandalism related events that can affect the railway that will ultimately be included in the model, identify cost measures to be included and assessed in the model and populate the model for 10 agreed upon vandalism events.</td>
<td>Includes details of costs potentially arising from incidents of trespass – possible input into final analysis stage of study, when looking at cost benefit analysis of installing new signs. Costs are given for a range of factors, including average cost per incidence of trespass onto the line, and average cost of repairing fencing. Potential for RSSB to use the model itself to derive</td>
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<td>SOURCE: <a href="http://www.RSSB.co.uk">www.RSSB.co.uk</a></td>
<td>potential cost savings from new sign installations.</td>
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<td>TITLE: Developing and Delivering a National Strategy to Tackle Route Crime in Britain</td>
<td>An overview of route crime in the UK and how it is being tackled. It outlines the industry approach – The 4 Es: Enabling, Education, Engineering and Enforcement (which is based on the American 3 Es). The paper was written by members of the National Route Crime Group (NRCG). The paper states that the total risk from route crime equates to approximately 66 equivalent fatalities per year with more than 80% of that risk relating to adult trespassers who knowingly trespass on the railway. The safety risk model is not intended to investigate the causes of trespass. It can be assumed that there are occasions when the protection against trespass is adequate but the trespasser overcomes the barriers that are present in order to take a short cut or access particular areas. Three of the main contributory causes of trespass identified by the NRCG are: to take a short cut, for ‘kicks’, and trespass for exceptional reasons, e.g., to retrieve a stray dog.</td>
<td>The paper discusses the 4 Es of the industry approach. Within the Education section there are several examples of industry straplines that are used in current education programmes. The most appropriate of these to use on a station could be the strapline ‘Keep Crime off the Line’ with the additional Contractors slogan ‘keep sites safe and secure’. (Pg. 9)</td>
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<td>AUTHOR: S. Nelson, Network Rail, &amp; M. Wilsden, Rail Safety and Standards Board</td>
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<td>SOURCE: Managing Trespass Seminar CD Rom, April 2004</td>
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<td>TITLE: Route Crime and Enforcement in</td>
<td>This paper provides an overview of the British Transport Police’s ‘Enforcement’ role in the National</td>
<td>The paper gives some initial answers to the ‘who’ and ‘why’ aspects of trespass route crime – it notes that the</td>
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<td>the UK</td>
<td>Route Crime Group's (NRCG) 4 Es (Enabling, Education, Engineering and Enforcement). The paper gives an outline of the penalty(ies) and Powers of Arrest the BTP have for various offences. One key element in their enforcement strategy is Prevention – Specialist Crime Prevention Officers who advise the railways on how to design out crime from stations and trackside facilities.</td>
<td>vast majority of people who trespass on the railway are adults, taking a shortcut or walking their dogs, etc. It may be useful to enquire about the current methods used by the Specialist Crime Prevention Officers when designing out crime from stations and trackside facilities.</td>
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<td>SOURCE: Managing Trespass Seminar CD Rom, April 2004</td>
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<td>TITLE: Route Crime – Industry Perceptions – A Report for Railway Safety, June 2002</td>
<td>This work involved a series of surveys that were completed by the public and by railway related stakeholders: the BTP, infrastructure maintenance contractors, train operating companies and Railtrack employees. The survey aimed to highlight the differences between the attitudes and understanding of those who have some level of control over the offences on the railway, and the public at large. The report gives recommendations on how to improve the safety of the railway from a trespass and vandalism point of view, namely improvement of the effectiveness of working partnerships between the railway industry and its allies.</td>
<td>Section 3.5 – Access to Railway Property – asks drivers, Railtrack, BTP and Contractors ‘What do you think are the 2-3 main ways that people get onto the railway line to do these things’? Between 31 and 38% of respondents stated <em>From/next to a station</em> as one of the main ways people access the railway. When asked where they had gained access to the railway: 11% of Adult offenders and 23% of Child offenders admitted to gaining access <em>From/next to a station</em>.</td>
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<tr>
<td>AUTHOR: Risk Solutions</td>
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<tr>
<td>SOURCE: Rail Safety and Standards Board Human Factors Research Catalogue CD Rom, June 2003</td>
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| **TITLE:** Trespassing on Railway Lines – A Community Problem-Solving Guide | This paper was produced by the Canadian Pacific Railway Police Service on behalf of Direction 2006, a national government and public partnership aimed at reducing railway trespassing and crossing incidents and related injuries and deaths by 50% by the year 2006. The paper discusses the Community, Analysis, Response and Evaluation (C.A.R.E) problem-solving model – the identification of the trespassing problem within the community; the analysis of the problem – determining the who, what, when, where, why and how the problem is occurring (see Appendix 6); the response to the problem – Education, Engineering, Enforcement or other strategy; and finally an evaluation of the effectiveness of the response – did it work and why/why not. | The paper has a Trespass Site Assessment checklist (Appendix 6). This checklist is designed to help gather information about a trespass location to assist in finding contributing factors, root causes and developing an effective response. The checklist covers;  
- Location – problem location (where)  
- Trespass Group – trespassers and type of activity (who and what)  
- Natural Surveillance – railway employees and observers  
- Time – day, week, month & season (when)  
- Access Control – point of entry & exit and physical barriers (how)  
- Territorial Reinforcement – ownership  
- Safe Route – authorised route (why). |
| **AUTHOR:** Sergeant W. J. Law, Canadian Pacific Railway Police Service | | |
| **SOURCE:** Managing Trespass Seminar CD Rom, April 2004 | | |
| www.trackoff.org.uk | Summaries of research and other initiatives into railway trespass | Contains information from research studies, together with links to Railway Crime Report 2005 which identifies trespass hotspots. |
Appendix B – existing signage (rail and non-rail)
Appendix C – visuals tested